

BIOLOGY-BA OR BS – PRE-VETERINARY MEDICINE*The BA degree requires 3rd semester proficiency in a foreign language (201 level).*THIS IS A **GENERAL** CURRICULUM GUIDE AND IS NOT APPLICABLE TO EVERY STUDENT. IT IS IMPORTANT TO MEET WITH YOUR ADVISOR.

Year One			
BIO 121* General Biology II w/lab Prerequisite: MTH 110 (may be taken concurrently) CHM 125+126 Principles of Chemistry I w/lab (GE Physical Science) Prerequisites: High school chemistry and (MTH 110 or MTH 122 or MTH 125 or MTH 201) ² MTH 122 College Algebra or Elective ⁴ Prerequisite: MTH 110 or math placement Gen Ed (GE Art) or ¹ WRT 120 (self-placement) BIO 130 Careers in Biology <i>*It is recommended that BIO majors take BIO 121 before BIO 120.</i>	4 (6) 3/1 (6) 3 3 1	BIO 120* General Biology I w/lab (GE Life Science) Prerequisites: High school chemistry, CHM 109, or CHM 125+126 strongly recommended (CHM 109 or 125+126 may be taken concurrently) CHM 127+128 Principles of Chemistry II w/lab Prerequisites: CHM 125+126 and (MTH 122, 125 or 201) ¹ WRT 130 or WRT 150 Strategies in Writing (GE Writing) ² MTH 123 Trigonometry or Elective ⁴ Prerequisite: MTH 122 (may be taken concurrently) or placement	4 (6) 4/1 (7) 3-4 3
<i>Numbers noted within (parentheses) are contact hours</i>	<i>Total</i>	<i>Total</i>	<i>15-16*</i>
Year Two			
BIO 215 Ecology w/lab (<i>summer and fall only</i>) Prerequisites: BIO 121 CHM 235+236 Organic Chemistry for Life Sciences I w/lab Prerequisite: CHM 127+128 Biology Elective (see list below) Gen Ed (GE Social/Behavioral)	4 (6) 4/1 (7) 3-4 3	CHM 237+238 Organic Chem. for Life Sciences II w/lab Prerequisite: CHM 235+236 Biology Elective (see list below) ⁴ MTH/STA Requirement (GE Math) Gen Ed (GE Social/Behavioral) ³ Elective (if needed)	3/1 (6) 3-4 3-4 3 1
<i>Total</i>	<i>15-16*</i>	<i>Total</i>	<i>14-15</i>
Year Three			
PHY 220 General Physics I Prerequisite: MTH 122 and MTH 123 CHM 461 Biochemistry I Prerequisite: CHM 237+238 or CHM 247 or CHM 248 Gen Ed (GE Historical Analysis) Gen Ed (GE US Diversity)	5 (7) 4 3 3	PHY 221 General Physics II Prerequisite: PHY 220 BIO 375 Genetics Prerequisite: BIO 120 or CMB 155 and 156 BIO 376 Genetics Laboratory Prerequisite: BIO 375 or 355 (may be taken concurrently) Gen Ed (GE Philosophy & Literature) Issues	5 (7) 3 1 (3) 3 3
<i>Total</i>	<i>15</i>	<i>Total</i>	<i>15</i>
Year Four			
BIO 210 Evolutionary Biology Prerequisites: BIO 120 and BIO 121 Biology Elective (see list below) ⁵ Issues+SWS Gen Ed (GE Global Perspectives) ³ Elective	3 3-4 3 3 1-3	^{5, 6} BIO 495 SWS Perspectives in Biology (Capstone) Prerequisites: Senior Standing, and either STA 215, MTH 125 or MTH 201 Biology Elective (see list below, if needed) Gen Ed (GE Art) (if needed) or ³ Elective ³ Elective or (Gen Ed, if needed) ³ Elective	3 3-4 3 3 2-3
<i>Total</i>	<i>14-15</i>	<i>Total</i>	<i>15</i>

*The block tuition rate is for 12-15 credits. You will pay additional tuition for any credits over 15

¹ WRT 150 earned through AP/Dual Enrollment will fulfill the WRT 150 requirement. A grade of C or better is required in WRT 130 or 150.² MTH 122 and MTH 123 are not required courses in the Biology major. These courses are prerequisites for other required major courses. MTH 124 and MTH 201 will substitute for MTH 122. **Take the Math Proficiency Tests for MTH 122 and/or 123 online: www.gvsu.edu/s/mv**³ Students must have a **minimum of 120 credits** to graduate with **58 of the 120 credits** being from a senior level institution and the **final 30 of the 120 credits** completed at GVSU. Elective refers to any course that will help meet these requirements.⁴ Choose one of the following for the math/statistics requirement for the major: MTH 125: Survey of Calculus, MTH 201: Calculus, or STA 215: Introductory Applied Statistics. Students who don't place into MTH 201 should take MTH 124 as a prerequisite instead of MTH 122+123.⁵ Students must complete a total of two courses with an SWS attribute.⁶ May substitute a 3-credit BIO 490 or BIO 499 with advisor approval. Must occur in final year and include a public presentation. Doesn't satisfy SWS.

Declaring the Biology Major:

1. In myBanner, select “Student” > “Student Records” > “Change Major” > “Change Major 1/Program”
2. Choose “Biology-(BA or BS)-Pre-Veterinary Medicine” from the drop-down box.
3. Click “Submit” and then “Change to New Program”
4. Declare “**Preprofessional Preparation**” as your SECOND MAJOR if you are planning on medical, dental, pharmacy, podiatry, or optometry school.

General Education Categories fulfilled by the Biology major:
Life Science and Physical Science: BIO 120 and CHM 125+126 (both fulfill lab requirement)
Mathematical Sciences: STA 215, MTH 125, or MTH 201

Students in the Pre-Veterinary Medicine Emphasis must complete 12 credits of Biology electives numbered BIO 222 or higher, or approved courses from the related fields listed below. Must include at least two (2) lab courses.

*Elective coursework is an important component of a competitive application to veterinary programs. **Applicants should carefully review the requirements for their target programs** and see their faculty advisor or an advisor in the CLAS Academic Advising Center for assistance in choosing elective courses. Here are some recommended elective courses for pre-vet students.*

¹BIO 357 Environmental Microbiology w/ lab (4) **OR**
BMS 212 Introductory Microbiology (3) **AND** BMS 213 Laboratory in Microbiology (1)

²BIO 302 Comparative Vertebrate Anatomy (4) **OR**
BMS 208 Human Anatomy (3)

BMS 290 Human Physiology (3)
BMS 309 Laboratory in Human Anatomy (2)
BMS 391 Laboratory in Human Physiology (2)
BMS 410 Immunology (3)
BIO 490 Internship (1-6)
BIO 499 Research in Biology (1-4)

Notes

- It is recommended to take one of BIO 357 or BMS 212/213, but not both
- It is not recommended to take BIO 355 and BIO 375.
- Human physiology has a prerequisite of BIO 302 or BMS 208.

¹*Offered in Fall semesters*

²*Offered in Winter semesters*

^{SS}*Offered in spring/summer*

^E*Offered in Even years*

^O*Offered in Odd years*

Numbers in parentheses indicate # of credits

The following list elective courses may also be appropriate.

¹BIO 222 Natural History of Vertebrates (3)
^{2O}BIO 232 Natural History of Invertebrates (3)
¹BIO 272 Insect Biology and Diversity (3)
BIO 328 Biomedical Ethics (3)
²BIO 342 Ornithology (3)
BIO 352 Animal Behavior (3)
¹BIO 362 Biology and Diversity of Fishes (4)
¹BIO 370 Marine Biology (3)
¹BIO 412 Mammalogy (4)
²BIO 416 Advanced Genetics Laboratory (2)
¹BIO 422 Animal Development Biology (3) w/lab
¹BIO 444 Herpetology (4)
²BIO 485 Molecular Ecology (3)
¹BMS 450 Human Histology (4)
CMB 405 Cell and Molecular Biology (4)
CMB 406+SWS Cell and Molecular Biology Laboratory (2)

Additional Biology Major Elective Options

Select from Biology (numbered 222 or higher), Biomedical Sciences (BMS 208 or higher), Behavioral Neuroscience (PSY 300, 330, 350, or 435), Cell and Molecular Biology (CMB 250 or higher), or Natural Resources Management (NRM 150 or higher). Internship and Research credit are encouraged (BIO 490/BIO 499).

It is imperative to meet with your faculty advisor and an advisor in the CLAS Academic Advising Center regularly.

The CLAS Academic Advising Center is located in C-1-120 MAK, 616-331-8585. To schedule an appointment with a Biology and/or Preprofessional Advisor in the CLAS Academic Advising Center, visit www.gvsu.edu/clasadvising and click on “Schedule Appointment.” To find more information on Preprofessional programs, visit www.gvsu.edu/clasadvising/preprofessional.